

REMARKS

This application has been carefully considered in connection with the Final Office Action dated April 7, 2008. Reconsideration and allowance are respectfully requested in view of the following.

Summary of Rejections

Claims 1-33 were pending at the time of the Final Office Action.

Claims 1-33 were rejected under 35 USC § 103.

Summary of Response

Claims 1, 9, 11, 23, 28 and 31 are currently amended herein.

Claims 3 and 10 were previously presented.

Claims 2, 4-8, 12-22, 24-27, 29-30 and 32-33 remain as originally submitted.

Remarks and Arguments are provided below.

Summary of Claims Pending

Claims 1-33 are currently pending following this response.

Response to Rejections

Upton, Beck, O'Donnell and Bhat, alone or in combination, do not disclose, teach or suggest a client application on a first operating system obtaining a token containing user credentials encoded as a platform and application independent string data type and providing the token to a server application on a second operating system to use services

of the server application, as claimed. Making the token a string data type makes it platform and application independent because the token has no header and, therefore, no application-specific header configuration. This feature of the claimed token eliminates the need to convert security information from the format of one platform to the format of another.

The system of the pending application includes a security application program interface, an authentication authority, a store maintaining data, an application program interface, and a server application. The security application program interface and application program interface are coupled to a client application on a first operating system. The security application program interface provides a security credential. The authentication authority receives the security credential from the security application program interface and, if the security credential is valid, the authentication authority generates a token and communicates the token to the security application program interface. The store maintaining the data, which is in communication with the authentication authority, validates the security credential. The application program interface is coupled to the client application and can communicate regarding the token. The server application is on a second operating system and receives the token from the application program interface and communicates with the authentication authority to validate the token to enable the client application to use services of the server application. This approach to providing application-to-application enterprise security permits the communication of security information in a heterogeneous computing environment using

a token containing user credentials encoded as a platform and application independent string data type.

With regard to the art rejections, the Final Office Action has rejected the pending claims citing Upton in view of Beck and further in view of O'Donnell. The Final Office Action has also rejected the pending claims citing Upton in view of Beck and further in view of Bhat. Upton relates to systems and methods for integration adapter security. Beck relates to methods and apparatus for providing anonymity to end users in web transactions. O'Donnell relates to methods and apparatus for securely granting access rights to unattended software. Bhat relates to systems and methods for sign-on to Web-based applications. Upton, Beck, O'Donnell and Bhat do not disclose, teach or suggest using a token containing user credentials encoded as a platform and application independent string data type, or using a security application program interface and an application program interface coupled to a client application on a first operating system, and a server application on a second operating system to receive the token from the application program interface and communicate with an authentication authority to validate the token, as claimed. Notably, the tokens found in the pending disclosure permit the authentication of users in a heterogeneous computing environment. In contrast, the computing environments in Upton, Beck, O'Donnell and Bhat require a homogeneous computing environment.

These distinctions, as well as others, will be discussed in greater detail in the analysis of the present claims that follows.

Response to Rejections under Section 103**Claim 1:**

Claim 1 was rejected under 35 USC § 103(a) as being unpatentable over Upton, U.S. Patent Application Publication No. 2003/0097574 (hereinafter, "Upton") in view of Beck et al., U.S. Patent Application Publication No. 2004/0088349 (hereinafter, "Beck") and further in view of O'Donnell et al., U.S. Patent Application Publication No. 2004/0117615 (hereinafter, "O'Donnell").

Claim 1 was also rejected under 35 USC §103(a) as being unpatentable over Upton in view of Beck and further in view of Bhat et al., U.S. Patent Application Publication No. 2003/0200465 (hereinafter, "Bhat"). These rejections are respectfully traversed.

I. Upton, Beck, O'Donnell and Bhat do not disclose, teach or suggest a security application program interface and an application program interface coupled to a client application on a first operating system, and a server application on a second operating system to receive the token from the application program interface, the server application communicating with the authentication authority to validate the token.

Claim 1 (as currently amended) recites, in part, "a security application program interface and an application program interface coupled to a client application on a first operating system, ...and a server application on a second operating system to receive the token from the application program interface, the server application communicating with the authentication authority to validate the token..."

The Final Office Action did not address these elements of claim 1, which were provided partly by amendment in this response. Nevertheless, Applicants assert that Upton, Beck, O'Donnell and Bhat do not disclose, teach or suggest the "security

application program interface and an application program interface coupled to a client application on a first operating system, ...and a server application on a second operating system to receive the token from the application program interface, the server application communicating with the authentication authority to validate the token," as recited in claim 1.

For example, the primary art cited, Upton, discloses in paragraph [0127], lines 1-7 and 18-30:

FIG. 3 shows an example of a security architecture that can be used with systems and methods in accordance with embodiments of the invention. As shown therein, clients 302, 304 (which may be either physical hardware clients or software applications) may attempt to access a secured service or resource 306, such as a persistent directory server, via a transaction or application server 308. ...In any case, the connection attempt is received by the transaction server, often via an initial connection filter 320, and is passed to the security service 322. In accordance with the invention, the security service 322 is the focal point for security determination, including client and user level resource access, authorization, certification, privilege assessment and entitlement determination. Enterprise Java Beans (EJB's) 324, Web applications (WebApp's) 326, and other forms of applications may all use the security service through the use of containers. The security service handles calls from these containers to the protected resource, which in the case of FIG. 2 [sic].

Upton also discloses in paragraph [0128], lines 1-10 and 12-18:

FIG. 4 illustrates an embodiment of the security service architecture 400 in greater detail. The security service augments the basic security services and features provided by the standard Java2 Enterprise Edition security set. As shown in this example, the basic java security set 402 includes security provider interfaces [SPI's] 404 for key storage, authentication, certificate validation, and secure

sockets, among others. Customer applications 406 may be written to directly take advantage of the Java security layer and these SPI's. ...In accordance with the invention, customer applications are deployed in containers, for example, an EJB container 408 of a WebApp container 410. The containers communicate directly with the security service 414 (herein the same as security service 322), which in turn communicates with the Java security layer 402 and its security SPI's 404.

As shown above and in Figures 3 and 4, Upton teaches the use of a security service, customer applications and a Java security set including security provider interfaces (SPI's) on an application server. Clients connect to the security service via a transaction server. The security service communicates with a secured server via a directory service. As such, Upton teaches the use of one server (and an associated operating system) for the security service and the SPI's and customer applications, a different server (and another operating system) for the secured resources, and still different operating systems associated with each of the clients disclosed. Consequently, Upton does not disclose, teach or suggest "a security application program interface and an application program interface coupled to a client application on a first operating system, ...and a server application on a second operating system to receive the token from the application program interface, the server application communicating with the authentication authority to validate the token," as recited in claim 1.

Additionally, none of the secondary art cited, Beck, O'Donnell and Bhat, discloses, teaches or suggests "a security application program interface and an

application program interface coupled to a client application on a first operating system, ...and a server application on a second operating system to receive the token from the application program interface, the server application communicating with the authentication authority to validate the token,” as recited in claim 1.

For at least the reasons established above in section I, Applicants respectfully submit that independent claim 1 is not disclosed, taught or suggested by Upton in view of Beck and further in view of O'Donnell or Bhat. Accordingly, Applicants respectfully submit that claim 1 is patentable over Upton, Beck, O'Donnell and Bhat and respectfully request allowance of this claim.

II. Upton, Beck, O'Donnell and Bhat do not disclose, teach or suggest wherein the token contains user credentials encoded as a platform and application independent string data type.

Claim 1 (as currently amended) also recites, in part, “wherein the token contains user credentials encoded as a platform and application independent string data type...”

With respect to claim 1, the Final Office Action states, in pertinent part:

Regarding claim 1, Upton discloses a system to provide application-to-application enterprise security, the system comprising:

...an authentication authority (Par [0115], [0128]-[0130], [0145]-[0147]; security services; authentication/authorization SPI) receiving the security credential from the security application program interface, the authentication authority further operable to communicate the token to the security application program interface where the security credential is valid, wherein the token contains user credentials encoded as a platform and application independent primitive data type (Fig 4; Par [0104], [0114], [0130], [0150]; Claims 1,12; service provider interface/SPI;

checking public/password type, or generic/token type credentials).

Final Office Action dated April 7, 2008, Pages 3 and 4.

Contrary to the assertions made in the Final Office Action, Upton does not disclose, teach or suggest “wherein the token contains user credentials encoded as a platform and application independent string data type,” as recited in (currently amended) claim 1. Specifically, the Final Office Action relied on the following disclosure in Upton to read on this element of claim 1:

[0150]A Principal→Credential Mapping (JAAS Login-Module) SPI can be based on the JAAS Login Module, and can be used to map principal identity when cross security domain policy or technology boundaries. The responsibilities of the Principal Mapping SPI is based on the Subject provided, and can be used to add public credentials with appropriate information to subject, such as password credentials for username/password, and generic credential for token-type credentials. (Underlining added for emphasis.)

The disclosure in Upton of “generic credential for token-type credentials” is not the token recited in claim 1. For example, the American Heritage[®] Dictionary of the English Language, Fourth Edition, defines the term “generic” as “Relating to or descriptive of an entire group or class; general.” Clearly, a generic credential (for token-type credentials) relating to or descriptive of an entire group or class does not teach or suggest “wherein the token contains user credentials encoded as a platform and application independent string data type,” as claimed.

The Final Office action also relied on the following disclosure in Upton to read on the same element of claim 1:

[0104] For many systems, it may be desirable to include support for the Java 2 Enterprise Edition (J2EE) specification and interoperability therewith. These J2EE specification features include the Common Secure Interoperability (CSI) protocol, user identity tokens, the Stateless Authentication Service (SAS) protocol, support for propagation of security credentials across machine, cluster, and/or domain boundaries, control of propagation of identity based on policy, enhanced support for virtual host/sites, the ability to generate a user identity scoped to domain, and host/site specific security policies. (Underlining added for emphasis.)

As shown in the above-cited paragraph, Upton teaches the use of “user identity tokens” and does not teach or suggest “wherein the token contains user credentials encoded as a platform and application independent string data type,” as recited in claim 1.

Beck teaches the use of a temporary user ID token. However, Beck discloses in paragraph [0020], lines 1-7, “As described above, each time the end-user’s browser 104 makes a request to any web site with which ISP 102 has an established relationship, that request is modified by the inclusion of an HTTP header containing a temporary user ID token. That token enables the end-user to maintain his anonymity to such Web site by using the trustworthy ISP as his agent in the transaction.” (Underlining added for emphasis.)

Beck also discloses in paragraph [0021], lines 1-9, “In a second embodiment of the invention, HTTP cookies rather than HTTP headers are used as the mechanism to

transport a temporary user ID token (and possibly other information) to third-party applications running on a Web server. ...A cookie is introduced to the client by including a Set-Cookie header as part of an HTTP response."

Beck further discloses in paragraph [0022], lines 18-23 and 29-32, "A service module 206 within intermediary 108 then modifies the response to include a Set-Cookie header. That header includes a temporary random or pseudo-random user ID token that is generated by the service module 206 and is assigned to the end-user until the cookie's expiration date. ...Intermediary 108 then forwards the modified response containing the Set-Cookie header with its associated temporary user ID token and additional information to the end-user's Web browser 104." (Underlining added for emphasis.)

As shown in the above-cited paragraphs, Beck teaches the use of associating a header with its temporary user ID token. In contrast to Beck's teachings of a temporary user ID token, the specification of the pending application states in paragraph [0028], lines 1-3 and 5-7, "Rather than security information being converted from the format of one platform to the format of another, security information is passed between applications in the form of a token with a string data type. ...Making the token a string makes it platform and technology independent because the token has no header and therefore no application-specific header configuration." (Underlining added for emphasis.)

In other words, as shown above, Beck teaches the use of temporary user ID tokens associated with HTTP headers or Cookie headers. Consequently, as discussed

directly above, Beck does not teach or suggest "wherein the token contains user credentials encoded as a platform and application independent string data type," as recited in claim 1.

O'Donnell teaches the use of a user validation token. However, this user validation token is not the token recited in claim 1. Specifically, O'Donnell discloses in paragraph [0063], lines 1-8, "Referring to FIG. 2C, a validation token is also issued 240 in association with the proxy account. The validation token can be any unique identifier corresponding to the created proxy account. In one embodiment, the validation token comprises a random code with an appended identifier particular to the created proxy account. There are numerous alternatives for the validation token, including those that are merely the proxy account identifier." (Underlining added for emphasis.)

O'Donnell also discloses in paragraph [0071], lines 1-5, "The access site receives and verifies appropriate credentials corresponding to the proxy account, and then sends 328 a user validation token to the authorized user. Like the account validation token, the user validation token can be any kind of unique code, number or the like."

As shown above, O'Donnell teaches the use of a validation token with an appended identifier particular to the created proxy account. Consequently, this validation token is not a token containing "user credentials encoded as a platform and application independent string data type," as recited in claim 1.

Bhat teaches the use of a Single Sign On (SSO) token that provides a listener mechanism for applications that need notification when the SSO token expires. Bhat

does not disclose, teach or suggest "wherein the token contains user credentials encoded as a platform and application independent string data type," as recited in claim 1. Therefore, for at least the above-described reasons, claim 1 is not unpatentable over Upton, Beck, O'Donnell and Bhat and should be allowed.

Claims depending from Claim 1:

Claims 2-3 were rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck.

Claim 8 was rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck and further in view of O'Donnell and Laferriere et al., U.S. Patent Application Publication No. 2005/0188212 (hereinafter, "Laferriere").

Claims 2-7 were rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck and further in view of Bhat.

Dependent claims 2-8 depend directly or indirectly from independent claim 1 and incorporate all of the limitations thereof. Accordingly, for at least the reasons established in sections I and II above, Applicants respectfully submit that claims 2-8 are not taught or suggested by Upton in view of Beck, and O'Donnell, Laferriere and Bhat, alone or in combination, do not cure the deficiencies of Upton and Beck. Therefore, Applicants respectfully request allowance of these claims.

Claim 9:

Claim 9 was rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck and further in view of O'Donnell. This rejection is respectfully traversed.

Claim 9 was also rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck and further in view of Bhat. This rejection is also respectfully traversed.

Claim 9 includes limitations substantially similar to the limitations discussed in sections I and II above. Accordingly, the arguments of sections I and II are hereby repeated for claim 9.

For at least the reasons established above in sections I and II, Applicants respectfully submit that independent claim 9 is not taught or suggested by Upton in view of Beck, and neither O'Donnell nor Bhat cure the deficiencies of Upton and Beck.

Claims Depending from Claim 9:

Dependent claims 11-12 and 24 were rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck and further in view of O'Donnell.

Dependent claim 15 was rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck and further in view of O'Donnell and Laferriere.

Dependent claims 26 and 27 were rejected under 35 USC 103(a) as being unpatentable over Upton in view of Beck and further in view of O'Donnell and Favazza.

Dependent claims 13-14, and 16-25 were rejected under 35 USC 103(a) as being unpatentable over Upton in view of Beck and further in view of Bhat.

Dependent claims 11-27 depend directly or indirectly from independent claim 9 and incorporate all of the limitations thereof. Accordingly, for at least the reasons established in sections I and II above, Applicants respectfully submit that claims 11-27 are not taught or suggested by Upton in view of Beck, and O'Donnell, Laferriere, Favazza and Bhat, alone or in combination, do not cure the deficiencies of Upton and Beck. Therefore, Applicants respectfully request allowance of these claims.

Claim 28:

Claim 28 was rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck and further in view of O'Donnell. This rejection is respectfully traversed.

Claim 28 was also rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck and further in view of Bhat. This rejection is also respectfully traversed.

Claim 28 includes limitations substantially similar to the limitations discussed in sections I and II above. Accordingly, the arguments of sections I and II are hereby repeated for claim 28.

For at least the reasons established above in sections I and II, Applicants respectfully submit that independent claim 28 is not taught or suggested by Upton in view of Beck, and O'Donnell and Bhat, alone or in combination, do not cure the deficiencies of Upton and Beck. Therefore, Applicants respectfully request allowance of this claim.

Claims Depending from Claim 28:

Claims 28 and 29 were rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck and further in view of O'Donnell. Claims 28-33 were also rejected under 35 USC § 103(a) as being unpatentable over Upton in view of Beck and further in view of Bhat. Dependent claims 29-33 depend directly or indirectly from independent claim 28 and incorporate all of the limitations thereof. Accordingly, for at least the reasons established in sections I and II above, Applicants respectfully submit that claims 29-33 are not taught or suggested by Upton in view of Beck, and O'Donnell and Bhat, alone or in combination, do not cure the deficiencies of Upton and Beck. Therefore, Applicants respectfully request allowance of these claims.

Conclusion

Applicants respectfully submit that the pending application is in condition for allowance for the reasons stated above. If the Examiner has any questions or comments or otherwise feels it would be helpful in expediting the application, the Examiner is encouraged to telephone the undersigned at (972) 731-2288.

The Commissioner is hereby authorized to charge payment of any further fees associated with any of the foregoing papers submitted herewith, or to credit any overpayment thereof, to Deposit Account No. 21-0765, Sprint.

Respectfully submitted,

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